

**ABSTRACT**

5 A method for removal of post reactive ion etch sidewall polymer rails on a Al/Cu metal line of a semiconductor or microelectronic composite structure comprising:

10 1) supplying a mixture of an etching gas and an acid neutralizing gas into a vacuum chamber in which said composite structure is supported to form a water soluble material of sidewall polymer rails left behind on the Al/Cu metal line from the RIE process; removing the water soluble material with deionized water; and removing photo-resist from said composite structure by either a water-only plasma process or a chemical down stream etching method; or

15 2) forming a water-only plasma process to strip the photo-resist layer of a semiconductor or micro-electronic composite structure previously subjected to a RIE process;

20 supplying a mixture of an etching gas and an acid neutralizing gas into a vacuum chamber on which said structure is supported to form a water soluble material of saidwall polymer rails left behind on the Al/Cu metal line from the RIE process; and

25 removing the water soluble material with deionized water.